

Claims

What is claimed is:

- 5 1. A lubrication reservoir comprising:
 a body;
 a follower moveable in the body; and
 an alarm operably associated with the follower, wherein the alarm generates a signal
when the follower is at a predetermined location in the body.
- 10 2. The reservoir of claim 1 wherein the alarm generates a signal when the follower is
at a lower portion of the reservoir indicating a low-level condition.
3. The reservoir of claim 1 wherein the alarm generates a signal when the follower is
15 at an upper portion of the reservoir indicating a high-level condition.
4. A lubrication reservoir comprising:
 a body;
 a follower moveable within the body; and
20 an alarm operably associated with the follower, wherein the alarm generates a signal
when the reservoir has a predetermined amount of usage time remaining.
5. The reservoir of claim 4 wherein the predetermined amount of usage time remaining
is at least one minute.
- 25 6. The reservoir of claim 4 wherein the predetermined amount of usage time remaining
is selected from the group consisting of at least five minutes, at least thirty minutes, at least one
hour, at least six hours, at least twenty-four hours, and the length of a work shift.
- 30 7. The reservoir of claim 4 wherein the follower is able to move toward a bottom
portion of the body after the signal has been generated.

8. The reservoir of claim 4 wherein the alarm comprises an electrical switch positioned proximate a top of the body, the switch having a spring-loaded rod, and a weight connected to the rod by a cable, the weight associated with the follower wherein as the follower moves to a predetermined position, the rod moves to a position to generate the signal.

9. The reservoir of claim 8 wherein the follower has a sleeve that moveably receives the weight.

10. The reservoir of claim 4 further comprising a pump operably coupled to the reservoir.

11. The reservoir of claim 4 wherein the body comprises an inner surface, and wherein the follower comprises a circumferential lip that engages the inner surface.

12. A lubrication reservoir comprising:
a body defining a cavity;
a follower moveably disposed in the body; and
an alarm operably associated with the follower, wherein the alarm generates a signal when the follower is at a predetermined location in the body, and wherein after the signal has been generated, the follower may move toward a bottom portion of the body.

13. The follower of claim 12 wherein the predetermined location represents a predetermined amount of usage time remaining.

14. The reservoir of claim 13 wherein the predetermined amount of usage time remaining is selected from the group consisting of at least five minutes, at least thirty minutes, at least one hour, at least six hours, at least twenty-four hours, and the length of a work shift.

15. A lubrication reservoir comprising:
a body defining a cavity;
a follower moveable within the body; and

an alarm system having an electrical switch positioned proximate a top of the body, the switch having a spring-loaded rod, and a weight connected to the rod by a cable, the weight associated with the follower wherein as the follower moves to a predetermined position, the weight moves the rod to a position to generate a signal.

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16. A lubrication system comprising:

a body defining a cavity adapted to contain a lubricant, wherein the body has a fill port adapted to communicate a supply of lubricant to the cavity;

a follower moveable within the body; and

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an alarm operably associated with the follower, wherein the alarm is configured to automatically interrupt the supply of lubricant through the fill port when the follower is at a predetermined location in the body.

17. The reservoir of claim 16 wherein the predetermined location is proximate an upper position of the body.

18. The reservoir of claim 16 wherein the follower comprises a circumferential lip that engages an inner surface of the body.

19. The reservoir of claim 16 further comprising a pump operably coupled to the body.

20. A lubrication system comprising:

a body defining a cavity adapted to contain a lubricant, wherein the body comprises a fill port adapted to communicate a supply of lubricant to the cavity;

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a follower moveable within the body between a lower position and an upper position;

an alarm system comprising an electrical switch having a spring-loaded rod, a weight connected to the rod by a cable, wherein when the follower moves to the upper position in response to the supply of lubricant through the fill port, the follower supports the weight allowing the rod to move such that the alarm is configured to automatically interrupt the supply of lubricant through the fill port.

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21. A lubrication reservoir comprising:
a body defining a cavity adapted to contain a lubricant, wherein the body comprises
a fill port adapted to communicate a supply of lubricant to the cavity;
a follower moveable within the body between a lower position and an upper
5 position;
a first alarm operably associated with the follower, wherein the first alarm generates
a signal when reservoir has a predetermined amount of usage time remaining; and
a second alarm operably associated with the follower, wherein the alarm is
configured to automatically interrupt the supply of lubricant through the fill port when the follower
10 is proximate the upper position.

22. The reservoir of claim 17 wherein the first alarm comprises a first spring-loaded rod
and a first weight interconnected by a first cable, and further comprises a first electrical switch,
wherein first spring-loaded rod is operably associated with first electrical switch; and wherein the
15 second alarm comprises a second spring-loaded rod and a second weight interconnected by a
second cable, and further comprises a second electrical switch, wherein second spring-loaded rod
is operably associated with second electrical switch.

23. The reservoir of claim 18 further comprising a receiving sleeve disposed on a side
20 of the follower proximate to a top portion of the body, wherein the receiving sleeve is adapted to
receive the first weight, and wherein the follower and the first weight are not permanently
connected.

24. A lubrication system adapted to be mounted on a construction vehicle or mining
25 vehicle, the system adapted to deliver grease to a plurality of lubrication points on the vehicle, the
system comprising:

a reservoir comprising a substantially cylindrical body having an inner surface
defining a cavity, the reservoir having a bottom plate connected to a bottom of the body and a top
plate connected to a top of the body, the body further having a fill port proximate the bottom of the
30 body, the port being in communication with the cavity, the reservoir adapted to contain the grease;

a follower having a central opening and a circular periphery, a circumferential elastomeric lip connected around the periphery, the follower being circumjacent the body wherein the lip contacts the inner surface, the follower having a sleeve extending towards the top plate, the follower being moveable within the cavity between an uppermost position and a lowermost position;

a pump mounted on the top plate, the pump having a shaft, a first end defining an outlet and a second end defining an inlet, the shaft extending from the top plate and through the central opening wherein the inlet is positioned proximate the bottom plate, the pump adapted to pump grease from the reservoir and outlet to the lubrication points on the vehicle;

a low-level alarm mounted on the top plate, the low-level alarm having a first electrical switch mounted on the top plate, the first switch having an open position and a closed position, and a low-level alarm associated with the first switch, and a spring-loaded first rod biasing the first switch to the open position, and a cable having a first end connected to the first rod and a second end connected to a weight, the weight received by the sleeve and resting on the follower, wherein as the pump pumps grease from the reservoir, the follower moves towards the bottom plate to a predetermined position along the body wherein an amount of grease remains in the reservoir representing usage for a predetermined amount of time, wherein at the predetermined position the cable becomes taught pulling the rod away from the first switch wherein the first switch moves from the open position to the closed position activating the low-level alarm, wherein the pump can continue to pump grease from the container and the follower can continue to move to the lowermost position wherein the weight moves within the sleeve and off of the follower; and

a high-level alarm mounted on the top plate, the high-level alarm having a second electrical switch mounted on the top plate, the second switch having an open position and a closed position, and a high-level alarm associated with the second switch, and a second spring-loaded rod biasing the second switch to the open position, and a second cable having a first end connected to the second rod and a second end connected to a member associated with the follower, the system further having a solenoid valve operably connected to the fill port, the valve being electrically connected to the second switch, wherein when grease is adapted to be supplied through the fill port to fill the reservoir and follower moves towards the uppermost position wherein the follower engages the member wherein the second switch moves to the closed position wherein the high-level

alarm is activated and the solenoid valve closes to automatically interrupt flow of grease into the reservoir in response to the closing of the second switch.

25. A lubrication reservoir comprising:

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a body; and

a follower moveable within the body;

wherein the reservoir has a height and a width, wherein the height is greater than or equal to about 15.0 inches, and wherein the reservoir has a ratio of its height to width less than or equal to about 1.3.